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FOREST PEST MANAGEMENT

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BIOLOGICAL EVALUATION R2-90-1

PEST CONDITIONS AND POTENTIAL HAZARD TREES IN SELECTED CAMPGROUNDS ON THE TAYLOR RIVER RANGER DISTRICT, GUNNISON NATIONAL FOREST, COLORADO

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SUMMARY

In September 1989, a ground survey was run to determine the insect, disease, and hazard tree conditions in six selected campgrounds (Spring Creek, One-Mile, Northbank, Rosy Lane, Lakeview and Mosca Campgrounds) on the Taylor River District of the Gunnison National Forest. The campground survey was divided into two portions, a within-campground survey and an outside-campground survey. Regeneration potential was also assessed.

The results of the surveys are presented in Tables 1, 2, and Appendix D. Lodgepole pine dwarf mistletoe (Arceuthobium americanum) was identified as a major disease problem in four of the six campgrounds surveyed, Spring Creek, One-Mile, Rosy Lane and Lakeview Campgrounds. Locations of the dwarf mistletoe infection centers are mapped and presented in Appendix E.

Average tree hazard levels in the campgrounds ranged from low to moderate. Numerous high hazard trees were identified in Mosca, Northbank, and One-Mile Campgrounds.

Other insect and disease problems were found at generally low levels. The most serious of these were the cankers and stem and root decays of aspen, which contributed significantly to tree hazard levels. The impact of the other insects and diseases was largely aesthetic.

Several management alternatives are presented for consideration. A combination of management activities are recommended, including institution of an annual hazard tree evaluation program and the selective removal and replacement of dwarf mistletoe infected trees. Wherever other insects and diseases do not affect hazard tree conditions, we suggest they be left alone as long as possible as part of the natural ecosystem. However, if their incidence increases dramatically (not a likely scenario), then the Forest Pest Management specialists at the Gunnison Service Center should be contacted. Revegetation of the dwarf mistletoe infested stands may be accomplished by encouraging non-host regeneration and by transplanting non-host stock from the surrounding stands. Public involvement in the replanting effort is encouraged.

Key to the coordination of the above activities is the development of a vegetation management plan for the campgrounds detailing specific treatment plans and activities. Development and implementation of the vegetation management plan should involve both the timber and recreation staffs of the Taylor River District. The Forest Pest Management specialists at the Gunnison Service Center are available to provide technical guidance and support.

ACKNOWLEDGEMENTS

Appreciation is extended to Ellen Clark and Maria Angwin for their assistance in the field work.

INTRODUCTION

Maintenance of forest health in developed recreation areas has increasingly become a focus of attention in Region 2. Key to this maintenance is the accurate estimation of the incidence, distribution and severity of the various disease and insect problems commonly encountered in campground areas. By identifying incidence, distribution and severity, land managers may identify the campgrounds and areas within the campgrounds where pest suppression measures are most urgently needed, and may gain a better understanding of which control measures are most appropriate for a given situation.

At the request of the Taylor River Ranger District, Gunnison National Forest, the Forest Pest Management (FPM) staff of the Gunnison Service Center (GSC) developed and conducted combined disease, insect and hazard tree surveys in six of the thirteen campgrounds in the Taylor River Canyon area. The campgrounds were selected on the basis of size, usage, and extent of perceived insect, disease, and hazard tree problems following a walk-through examination of the Taylor River Canyon recreation sites by Pete Angwin (FPM Service Center plant pathologist), Bernie Raimo (FPM Service Center entomologist), and Jaime Oliva (Taylor River R.D. recreation forester). The surveys were run in September 1989, in the following campgrounds:

Spring Creek Campground
One-Mile Campground
Northbank Campground
Rosy Lane Campground
Lakeview Campground
Mosca Campground

All of the above campgrounds, except for Lakeview Campground were last surveyed for hazard tree conditions in 1975 (Johnson and Landis 1975).

OBJECTIVES

Through the years, various survey techniques have been employed to evaluate hazard trees (Johnson 1981; Sharon and Hubbard 1985), dwarf mistletoe (Hawksworth 1977; Johnson, Hawksworth and Drummond 1980), and root diseases (Bloomberg, Cumberbirch and Wallis 1980; Johnson 1984), but to date, these surveys have not been combined to give an integrated view of the overall disease situation. The survey method employed in this evaluation sought to provide an estimation of the extent, distribution, and severity of dwarf mistletoe, root disease, canker, insect and hazard tree problems both within and immediately surrounding campgrounds. Existing survey methods were combined and revised to meet the above objectives.

METHODS

Each campground survey was divided into two portions, a within-campground survey and an outside-campground survey. The within-campground survey was designed to address forest pest and hazard tree conditions within the boundaries of the campground itself. In contrast, the outside-campground survey assessed conditions in the surrounding stands that could impact the management and implementation of disease suppression measures within the campground. Since the objectives of the two surveys differed, separate techniques were employed in each area. To illustrate the layout of the within- and outside-campground plots, a map showing plot locations at Rosy Lane Campground is provided in Appendix A.

Within-Campground Survey

The design of the within-campground survey roughly followed that of the aspen mortality survey developed by Hinds (1976) and the tree hazard survey by Johnson (1981). The survey plots were campsite-centered in order to better assess tree hazard to occupied areas. Every fifth unit before and after a randomly selected campsite was examined (20% sample). A minimum of three campsites were examined in campgrounds with 15 or fewer units (Spring Creek Campground). Two types of temporary plots were established:

1. Interior Plots (to determine pest conditions within individual campsites). Using a point located midway between the fire pit and the picnic table as plot center, an 0.05-acre circular plot (26-foot 4-inch radius) was established. All trees over 5" DBH were examined for dwarf mistletoe, root disease, cankers, defect, insect pests and hazard potential (Appendix B). Trees infected with dwarf mistletoe were rated using the 6-class dwarf mistletoe rating system developed by Hawksworth (1977), and hazard trees were rated according to the hazard tree method of Johnson (1981).

2. Inter-unit Plots (to determine the condition of trees immediately surrounding the camp units). For each interior plot sampled, an inter-unit plot was also established. Inter-unit plots were located between the current campsite and the previously numbered adjacent campsite, centered on a line between points midway between the fire pit and picnic table of each campsite. Plot size and data recorded were the same as for the interior plots (Appendix B). In addition, for each inter-unit plot, two 1/300 acre plots were established to record regeneration. The centers of the regeneration plots were located 20' to the left and right of the inter-unit plot center, along a line perpendicular to the line joining two campsites. At each regeneration plot, the numbers and species of trees less than 5" DBH were recorded. The numbers of trees of each species less than and greater than 2' tall were also recorded to determine the relative ability of the regeneration to survive overstory removal.

Outside-Campground Survey

The outside-campground survey was designed to assess dwarf mistletoe, root disease and insect pest conditions in forest stands immediately surrounding the campgrounds. A modified strip-survey was employed. A single survey strip located 1/2 chain from the edge of the campground was run around the campground perimeter. The 1/2 chain distance was established so that the survey would include any dwarf mistletoe infected trees that may disperse seeds into the campground (1/2 chain is the distance within which 90% of the dwarf mistletoe seed is dispersed (Hawksworth and Graham 1963)). Sample points were established at every two chains along the strip. At each sample point, a 20 BA factor prism determined sample trees. All trees over 5" DBH were examined for dwarf mistletoe, root disease, cankers, defect, and insect pests (Appendix C).

RESULTS AND DISCUSSION

Results of the within and outside-campground surveys were tabulated separately. Data from the interior and inter-unit plots were both pooled and tabulated separately. The data from the regeneration plots were pooled to determine the potential for regeneration within the campground boundaries. The complete results of the surveys are listed in Appendix D. Where possible, the data is reported as percent infection or by severity index (e.g., Dwarf Mistletoe Rating or Hazard Tree Risk Rating).

Dwarf mistletoe of lodgepole pine (Arceuthobium americanum) was identified as the major disease problem in four of the six campgrounds surveyed (Spring Creek, One-Mile, Rosy Lane and Lakeview Campgrounds). Dwarf mistletoe ratings of infected lodgepole pine ranged from 0 to 4.25, and stand DMRs ranged from 0 to 2.1 (Table 1). Locations of the dwarf mistletoe centers are mapped and presented in Appendix E.

The average tree hazard rating for each campground was low to moderate, with overall ratings of 10-20 (Table 2). Numerous high hazard trees were encountered in Mosca (14 trees), Northbank (3 trees) and One-Mile (3 trees) campgrounds. However, the ratings in many of the high hazard trees in Mosca Campground (lodgepole pine and spruce) appeared to be exaggerated. Using the current risk rating form, the trees were assigned a high hazard rating due to the presence of dead tops from past and present animal activity. The remainder of the crowns were healthy and vigorous, and the trees did not appear likely to fail in the near future. High hazard trees with other structural defects, such as standing dead trees, leaners, and ones with extensive basal and bole decay were immediately reported to the district.

While dwarf mistletoe of lodgepole pine was the major disease problem identified in the campgrounds, other insects and diseases were found at generally low levels. The most serious of these were the cankers, stem and root decays of aspen, including Ceratocystis fimbriata (target canker), Phellinus tremulae (white trunk rot), and Ganoderma

Table 1. Dwarf mistletoe evaluations of selected campgrounds on the Taylor River District, Gunnison National Forest.

		% Infection		DMR[a]	
		LPP	Stand	Infected LPP	Stand
Spring Creek	Inside C.G.[b]	60	52	3.25	1.7
	Outside C.G.	100	52	3.1	1.6
One-Mile	Inside C.G.	30	23	3.6	0.8
	Outside C.G.	62	39	2.8	1.1
Rosy Lane	Inside C.G.	48	44	2.4	1.1
	Outside C.G.	27	15	2.5	0.4
Lakeview	Inside C.G.	26	26	2.2	0.6
	Outside C.G.	18	18	3.0	0.5
Northbank	Inside C.G.	0	0	0	0
	Outside C.G.	0	0	0	0
Mosca	Inside C.G.	0	0	0	0
	Outside C.G.	0	0	0	0

[a]DMR = Hawksworth's (1977) dwarf mistletoe rating

[b]Inside C.G. figures represent pooled interior and inter-unit data

Table 2. Tree hazard evaluations of selected campgrounds on the Taylor River District, Gunnison National Forest.[a]

	Average	% Hazard Rating		
	Hazard Rating[b]	High	Medium	Low
Spring Creek	7.8	0	43	57
One-Mile	15.1	10	68	23
Rosy Lane	14.0	0	78	22
Lakeview	14.5	1	79	20
Northbank	14.2	7	69	24
Mosca	12.8	18	43	38

[a]The hazard ratings presented are not recommendations for action. They are professional estimates of the probability of tree failure and are to be used by the land manager during the decision-making process for management plans in recreation areas. Figures represent pooled interior and inter-unit data.

[b]Hazard ratings determined by Johnson's tree hazard evaluation procedure (1981). High= 21-27; Medium= 10-20; Low= 0-9

applanatum (white mottled rot). The major impact of these diseases are in contributing to tree hazard. Other diseases identified in the coniferous hosts included western gall rust (Endocronartium harknessii), spruce broom rust (Chrysomyxa arctostaphyli) and western spruce budworm (Choristoneura occidentalis). The major impact of these pests is aesthetic, though large single infections may eventually contribute to tree hazard levels.

Shoestring root disease (Armillaria sp.), the major root disease problem in the Rocky Mountain region, was not found in its potential hardwood and coniferous hosts. Annosus root disease (Heterobasidion annosum) was likewise absent from its coniferous hosts.

A description of each recreation area surveyed is presented below, together with the disease, insect, and hazard conditions. More detailed information may be found in Appendix D. Maps showing the size and locations of the dwarf mistletoe centers in Spring Creek, One-Mile, Rosy Lane and Lakeview Campgrounds are presented in Appendix E:

1. Spring Creek C.G. - 12 camp units. Mix of lodgepole pine, ponderosa pine, Douglas-fir, blue spruce, and aspen. Cottonwood and willow are present along the creek. Stocking levels are low; most campsites are in full sunlight, and from most of the campsites, one can easily see across the campground. Regeneration levels are moderate (675 trees per acre-TPA), consisting of aspen (525 TPA) and lodgepole pine. All of the regeneration is greater than two feet in height. Dwarf mistletoe centers are widespread along the western and northern sides of the campground, but are not present south of the campground loop. Where present, the dwarf mistletoes are causing growth loss and mortality. Infection levels in the centers are moderate to high, with average ratings from 2.75 to 4.25. The average tree hazard was rated as medium (13.5), and no high hazard trees were identified. Low levels of western gall rust and western spruce budworm were noted in lodgepole pine and Douglas-fir, respectively.

2. One-Mile Campground - 26 camp units. Mixed lodgepole pine, blue spruce and aspen. Stocking levels are moderate; adequate shading and screening are present in most of the campsites. Regeneration potential is high (1470 TPA), but most of the new trees are aspen (1050 TPA). Dwarf mistletoe infection is worst in the eastern half of the campground, though two smaller centers were identified along the campground boundary in the western half. Dwarf mistletoe ratings in the centers are moderate, with average ratings ranging from 2.8 to 3.6. Average hazard potential is medium (15.1), but cankers, stem and root decay have resulted in high hazard levels among the aspen. Two of the three high hazard trees identified for removal were aspen with cankers (C. fimbriata), stem decay (P. tremulae) and basal decay (species unknown).

3. Northbank Campground - 16 camp units. Mixed lodgepole pine, ponderosa pine, blue spruce and aspen. Cottonwood is present along the Taylor River. Stocking levels are moderate to high; adequate shading and screening are present in most of the campsites. Regeneration levels are low to moderate, with 450 trees per acre. Although the regeneration plots contained only aspen, scattered lodgepole pine and spruce seedlings are present throughout the perimeter of the campground. The average tree hazard was rated as medium (14.2), but three high hazard trees (lodgepole pines with internal decay and/or structural defect) were identified for removal. Dwarf mistletoe was not present and, except for the aforementioned stem decay (species unknown) in some of the lodgepole pines, no other disease or insect problems were noted.

4. Rosy Lane Campground - 18 camp units. Mixed lodgepole pine, ponderosa pine, blue spruce, Douglas-fir and aspen. Stocking levels are low to moderate. Many campsites along the southern edge of the campground are in full sunlight and have inadequate screening. Regeneration levels are low to moderate (450 TPA), consisting mostly of lodgepole pine (300 TPA) and Douglas-fir (75 TPA). Over half of the regeneration is less than 2' tall. Five dwarf mistletoe centers were identified in the campground. The largest three are located along the western and eastern edges of the campground, and at the campground entrance. The average dwarf mistletoe ratings of infected trees are lower than those at Spring Creek and One-Mile Campgrounds, ranging from 2.0 to 2.5. The average hazard potential was medium (14.0), and high hazard trees were not found. Other than the dwarf mistletoes, no other important insect or disease problems were identified.

5. Lakeview Campground - 46 camp units. Lodgepole pine site. The largest of the campgrounds surveyed, Lakeview Campground is well stocked with lodgepole pine, and adequate shading and screening are present in most of the campsites. Regeneration levels are high (1750 TPA), consisting almost entirely of lodgepole pine. Although the regeneration survey only identified lodgepole pine, small numbers of spruce seedlings were also noted along the western edge of the campground. Dwarf mistletoe infection centers are both large and widespread. However, the average infection levels of infected trees are low to moderate, with the average DMRs ranging from 2.1 to 3.0. The average hazard rating is medium (14.5), and no high hazard trees were identified. Low levels of western gall rust and stem decay (unknown white rot) were also found in the campground.

6. Mosca Campground - 16 camp units. Mixed lodgepole pine and spruce. Stocking levels are moderate to high, with adequate shading and screening in most of the campsites. Regeneration levels are moderate (525 TPA), consisting of lodgepole pine (375 TPA) and spruce (150 TPA). The majority of both are under 2' tall. Dwarf mistletoe was not found. However, animal

activity has resulted in widespread damage in both the spruce and lodgepole pines. Numerous trees with dead tops are scattered throughout the campground, particularly near the entrance and in the western third of the campground. The average hazard potential is medium (12.8), and, as discussed previously, many trees were rated as high hazards due to the presence of dead tops. However, four dead and leaning hazard trees were identified for removal. Spruce broom rust was the most common of the other diseases, and occasional infected trees were found throughout the campground. In addition, three lodgepole pines were found with stem and butt rot (probably caused by Phellinus pini), and one was identified with western gall rust.

MANAGEMENT ALTERNATIVES

1. Do Nothing. Under this alternative, the number and severity of hazard trees will continue to increase, along with the probabilities of tree failure, property damage, and personal injury. Expansion of the dwarf mistletoe infection centers in Spring Creek, One-Mile, Rosy Lane, and Lakeview Campgrounds will continue, as the affected trees decline in health and vigor. Subsequent loss of trees will seriously reduce shading and screening, reducing the aesthetic qualities of the campgrounds. In addition, if the infected lodgepole pines are not removed, the underlying lodgepole pine regeneration is also likely to become infected and die. Other regeneration, most notably aspen, will eventually replace the lodgepole pine. While initially providing beneficial shading and screening, the susceptibility of aspen to cankers and stem decay (and thus to hazard tree problems) makes the species inappropriate for most campground situations.

2. Reduce Tree Hazard Potential. This alternative involves the implementation of a program of annual inspections to detect and identify hazard trees. The tree hazard evaluation proposed is best accomplished in three steps: identification, documentation, and corrective action. The evaluation is not merely a checkup of tree mortality; identification of hazard trees entails the evaluation of both the probability of failure (tree defect evaluation) and the probability of injury or damage (target evaluation). An appropriate hazard tree sampling system is described by Johnson (1981). A new videotape by Sharon and Steinke (1989), "Tree Health Management: Evaluating Trees For Hazard", is available to help train inspection personnel. In order to reduce liability, complete documentation of all hazard tree inspections is a necessity. Corrective action involves the treatment or removal of hazard trees as soon as possible after an evaluation. Whenever possible, tree removal should be accomplished during the off-season to minimize the impact on recreationists. Treatment of hazard trees (short of removal) may include such treatments as pruning or strengthening of the tree by installation of reinforcing cables or metal rods. Not all defective trees need to be treated or removed; only those whose proximity to a target is such that the risk the

tree poses outweighs the benefits it provides. Defective trees that are not removed should be monitored closely, particularly if they are located in areas of intensive use.

3. Remove The Targets. In some cases, the severity of the hazard tree problem and the expense of correcting it is such that closure of the campground or sections of the campground is the only reasonable alternative. We do not believe this is the case in any of the campgrounds we surveyed. On a smaller level, it is sometimes appropriate to remove potential targets from the hazard by moving camping pads or structures away from particularly hazardous trees.

4. Implement Dwarf Mistletoe Control. Under this alternative, dwarf mistletoe control measures would be undertaken in Spring Creek, One-Mile, Rosy Lane and Lakeview Campgrounds. The objective of these measures would be to reduce the negative effects of the disease on tree vigor and longevity and to prevent disease spread into non-infested areas. Detailed guidelines for dwarf mistletoe control in developed recreation areas may be found in Hawksworth and Johnson (1989) and FPM (1990). Appropriate management activities may include:

   a. Broom Pruning - To extend tree life and maintain trees on the site for as long as possible.

   b. Tree Removal - To selectively eliminate infested trees, prevent the buildup of bark beetles, and reduce dwarf mistletoe spread in the stand.

   c. Branch Pruning/Eradication - To reduce or eliminate dwarf mistletoe spread in the stand and improve tree vigor.

   d. Thinning - To improve stand growth and tree vigor.

   e. Favoring and Planting of Non-Host Conifers and Hardwoods - To eventually replace infected trees with uninfected trees and lessen future spread of dwarf mistletoe.

   f. Creation of Buffer Strips - To limit or stop the spread of dwarf mistletoe into a treated area from adjacent infested areas.

   g. Application of Ethephon (an ethylene-releasing agent that causes dwarf mistletoe shoots to drop off host trees) - To prevent the spread of dwarf mistletoe seed during establishment of the understory until the infected overstory can be removed.

   h. Rotation of Campground Usage - To provide for long-term recovery of heavily infested areas.

   Of these measures, tree removal and the creation of buffer strips are the most effective for long-term dwarf mistletoe control.

Control treatments should only be done in conjunction with a program to replace removed trees. This may be accomplished either by favoring existing regeneration or by active replanting. Tree species that are not susceptible to lodgepole pine dwarf mistletoe, such as spruce and Douglas-fir, should be favored whenever possible. Active replanting is recommended wherever regeneration potential is low, and in particular in Spring Creek Campground. Suitable planting stock may be obtained from the stands immediately adjacent to the campgrounds and transplanted by use of a tree spade. Not all infected trees need be immediately removed. However, if lodgepole pine is planted or allowed to regenerate under an infested overstory, then that overstory should be removed before the new trees reach 10 years of age. If the overstory is heavily infested, applications of ethephon (at 3-year intervals until the overstory is removed) may be appropriate. Public involvement in the dwarf mistletoe projects should be made a priority. A series of information boards can explain the nature of the parasite and what is being done about it. Campground hosts may also be used to help spread the word about the projects. Finally, in areas that are replanted, campers may be encouraged to help with the regeneration by watering the new trees.

5. Address The Other Insect and Disease Problems. During the surveys, a number of minor insect and disease problems were identified in the campgrounds. Among these were aspen cankers, stem and root disease in One-Mile Campground, western spruce budworm in Douglas-fir in Spring Creek Campground, animal damage and spruce broom rust in Mosca Campground, and western gall rust in lodgepole pine in Spring Creek, Lakeview and Mosca Campgrounds. While the primary impact of these endemic insects and diseases is in their contributions to tree hazard, they also impact the aesthetic qualities of the campgrounds as well. These impacts may be both positive and negative, depending on one's point of view. While some may view infested or diseased trees as an eyesore, others may view the same in a positive light, as part of the natural order of things. As land managers, we agree with the latter point of view. Therefore, where insects and diseases do not cause hazard or tree death, we recommend that the host trees be retained for as long as possible. The annual hazard tree evaluation should be sufficient to keep apprised of the status of the "minor" insect and disease conditions. If the occurrence of these pests increases dramatically, the Forest Pest Management specialists at the Gunnison Service Center should be contacted. Again, a series of information boards discussing the various roles that insects and diseases play in forest ecosystems is desirable. Such information would both educate the public and stimulate a new appreciation for what may previously may have been considered an eyesore.

6. A Combination of Alternatives 2, 3, 4 and 5. The above alternatives are not mutually exclusive. They are best used in combination to solve specific problems in many areas.

RECOMMENDATIONS

In a campground situation such as at the Taylor River area, the major priority is to maintain vegetative cover while minimizing the negative effects of insects and diseases. The best way to achieve this goal is by applying a variety of management activities to address the hazard tree, insect, and disease situations. Management Alternative 6 is therefore recommended. One specific management activity that is already required (FSM R2 Supp. 93-2331.32) is the institution of an annual hazard tree evaluation and removal program in all of the District's campgrounds. Region 2 Forest Pest Management has provided direction and a form (R2-2300-11a) to help affect the annual safety and health inspection. The Forest Pest Management specialists at the Gunnison Service Center (GSC) are available to provide guidance and to train District personnel in the recognition of potentially hazardous trees. Another management activity that is needed is the selective removal and replacement of dwarf mistletoe-infected trees in Spring Creek, One-Mile, Rosy Lane and Lakeview Campgrounds. Layout of treatment blocks and selection of trees to be removed should involve both timber and recreation staffs from the Taylor River District, as well as the Forest Pest Management personnel of the GSC. Final selection of trees to be treated or removed should take place at the campgrounds, with all staffs present. Replanting in the campgrounds should take place as soon as is operationally feasible. Again, this may be best accomplished by using transplants and tree spade stock from the surrounding stands. Involvement of the public (from the public schools, Western State College, the Rocky Mountain Biological Laboratory, or the Top of the World Gardening Society) in the replanting efforts may be solicited and encouraged.

In order to coordinate these activities, a comprehensive vegetation management plan for the campgrounds should be drawn up, identifying specific treatments for areas infested with dwarf mistletoe, together with a plan to reduce the incidence and development of hazard trees. The plan should also include a specific timetable for all proposed management activities. Development of the vegetation management plan should involve all three of the resource staffs mentioned previously. Management of the other minor insect and disease problems need not be addressed unless they come to cause widespread mortality (not a likely situation) or affect the hazard tree situation. Again, the presence of these minor problems can be exploited for their educational value.

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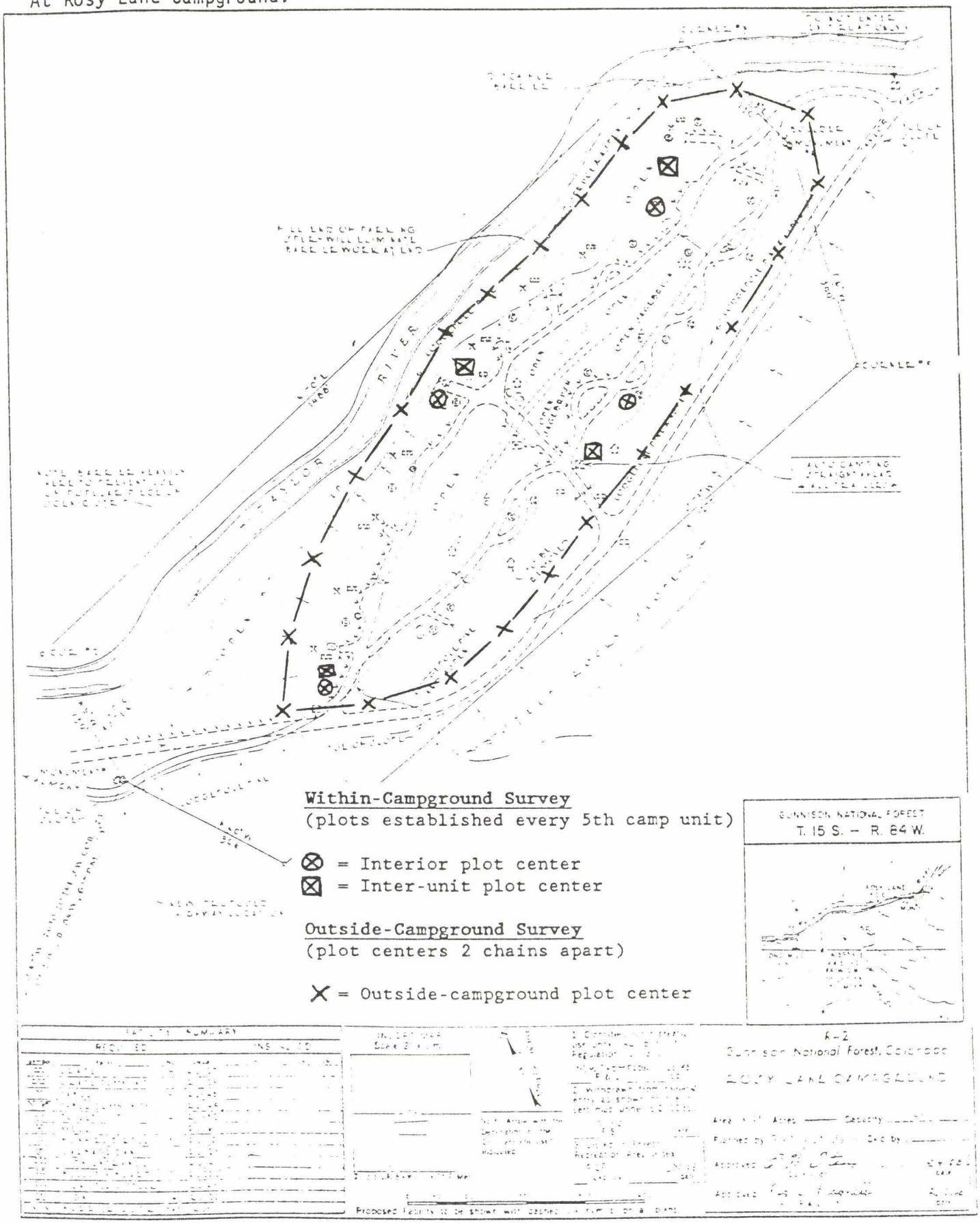
APPENDIX A

Within- and outside-campground survey plot locations
at Rosy Lane campground, Taylor River District,
Gunnison National Forest.

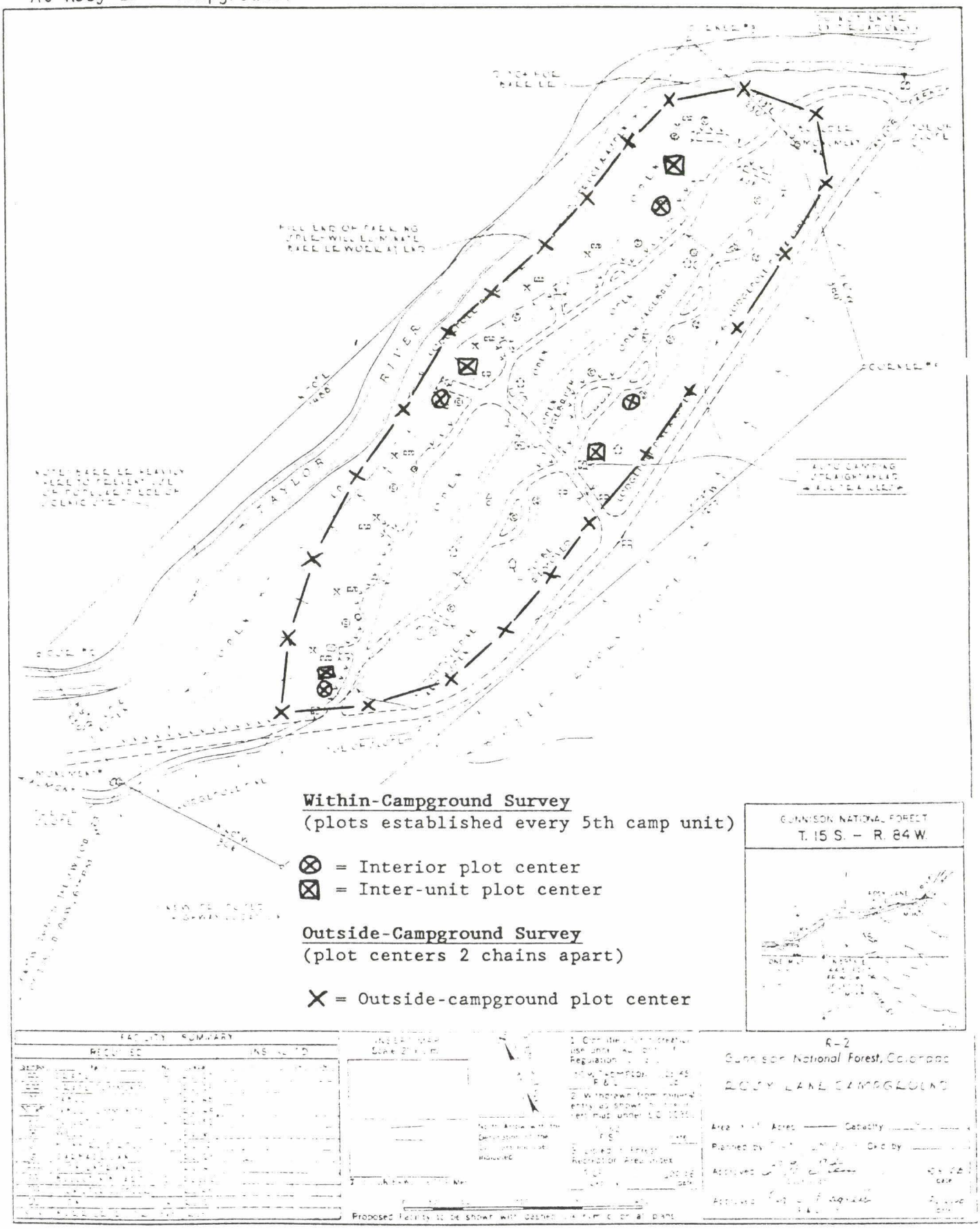
Within- and Outside- Survey Plot Locations
At Rosy Lane Campground.


Within-Campground Survey
(plots established every 5th camp unit)
⊗ = Interior plot center
⊠ = Inter-unit plot center
Outside-Campground Survey
(plot centers 2 chains apart)
X = Outside-campground plot center
GUNNISON NATIONAL FOREST
T. 15 S. – R. 84 W.
ROSY LANE CAMPGROUND

APPENDIX B

Within-campground survey form used to assess insect, disease, and hazard tree conditions in six Taylor River area campgrounds.

Within- and Outside- Survey Plot Locations
At Rosy Lane Campground.


Within-Campground Survey
(plots established every 5th camp unit)
⊗ = Interior plot center
⊠ = Inter-unit plot center
Outside-Campground Survey
(plot centers 2 chains apart)
X = Outside-campground plot center
GUNNISON NATIONAL FOREST
T. 15 S. - R. 84 W.
R-2
Gunnison National Forest, Colorado
ROSY LANE CAMPGROUND

APPENDIX B

Within-campground survey form used to assess insect, disease, and hazard tree conditions in six Taylor River area campgrounds.

INSIDE-CAMPGROUND SURVEY

Forest:_____ District:_____ Campground:_____
Date Of Inspection:_____ Evaluated By:_____
Unit No.:_____
Interior Plot:_____ Inter-Unit Plot: _____ Between Campsites:_____
Habitat Type:_____ Understory Vegetation:_____

Tree No.										
Species										
DBH										
Crown Ratio										
DM Rating										
Root Disease										
Stem Decay										
Internal Decay (Sound/Drill/Core)										
Cankers										
Rust										
Human Damage										
Defoliating Insects (% Defoliation)										
Bark Beetles										
Other Insects										
Hazards										

Regeneration Plots (# trees of each spp. <5" DBH,
trees of each spp. >2', <2' tall)

Plot 1. (Left)

Plot 2. (Right)

APPENDIX C

Outside-campground survey form used to assess insect, disease, and hazard tree conditions in six Taylor River area campgrounds.

OUTSIDE-CAMPGROUND SURVEY

Forest:_____ District:_____ Campground:_____

Date Of Inspection:_____ Evaluated By:_____

Plot No.:_____ Slope:_____ Aspect:_____

Habitat Type:_____ Understory Vegetation:_____

Tree No.										
Species										
DBH										
Crown Ratio										
DM Rating										
Root Disease										
Stem Decay										
Internal Decay (Sound/Drill/Core)										
Cankers										
Rust										
Defoliating Insects (% Defoliation)										
Bark Beetles										
Other Insects										
Notes										

APPENDIX D

Results of insect, disease and hazard tree surveys in six campgrounds in the Taylor River District, Gunnison National Forest.

LPP= Lodgepole pine (Pinus contorta)
SP= Colorado blue spruce (Picea pungens) or
Engelmann spruce (Picea engelmannii)
ASP= Quaking aspen (Populus tremuloides)
DF= Douglas-fir (Pseudotsuga menziesii)
PP= Ponderosa pine (Pinus ponderosa
WF= White fir (Abies concolor)
J= Juniper (Juniperus sp.)
C= Cottonwood (Populus sp.)

1. STAND DESCRIPTION

		SPECIES COMPOSITION (%)						BASAL AREA (ft^2/ac)						TREES PER ACRE					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
SPRING CREEK	Inside CG: Interior	75	25	0	0	0	---	15.4	11.3	0	0	0	26.7	30	10	0	0	0	40
	Inter-Unit	93	7	0	0	0	---	31.3	2.8	0	0	0	34.1	70	5	0	0	0	75
	Pooled	87	13	0	0	0	---	23.3	7.1	0	0	0	30.4	50	7	0	0	0	57
	Outside CG:	48	19	0	30	4	---	15.3	5.9	0	9.4	1.2	31.8	28	6	0	7	1	42
ONE-MILE	Inside CG: Interior	83	0	17	0	0	---	45.6	0	5.6	0	0	51.2	60	0	12	0	0	72
	Inter-Unit	62	8	31	0	0	---	24.4	2.7	5.7	0	0	32.8	32	4	16	0	0	52
	Pooled	74	3	23	0	0	---	35.0	1.4	5.7	0	0	42.0	46	2	14	0	0	62
	Outside CG:	61	13	13	10	PP/J 2/1	---	47.0	10.0	10.4	7.8	PP/J 1.3/0.4	77.4	123	12	44	14	PP/J 1/3	197
NORTHBANK	Inside CG: Interior	88	4	0	0	8	---	96.2	2.1	0	0	18.1	116.4	140	7	0	0	13	160
	Inter-Unit	83	11	0	0	6	---	87.9	11.4	0	0	12.9	112.2	100	13	0	0	7	120
	Pooled	86	7	0	0	7	---	92.1	6.8	0	0	15.5	114.3	120	10	0	0	10	140
	Outside CG:	52	25	0	3	PP/C 17/2	---	36.7	17.8	0	2.2	PP/C 12.2/1.1	70.0	52	28	0	2	PP/C 7/1	89
ROSY LANE	Inside CG: Interior	73	9	0	0	18	---	15.7	3.4	0	0	10.4	29.5	40	5	0	0	10	55
	Inter-Unit	100	0	0	0	0	---	59.7	0	0	0	0	59.7	125	0	0	0	0	125
	Pooled	92	3	0	0	6	---	37.7	1.7	0	0	5.2	44.6	83	2	0	0	5	90
	Outside CG:	55	22	1	18	3	---	57.4	22.6	0.9	19.1	3.5	103.5	147	33	3	48	3	232

1. STAND DESCRIPTION (CONT.)

		SPECIES COMPOSITION (%)						BASAL AREA (ft^2/ac)						TREES PER ACRE					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
LAKEVIEW	Inside CG:																		
	Interior	100	0	0	0	0	---	119.2	0	0	0	0	119.2	182	0	0	0	0	182
	Inter-Unit	100	0	0	0	0	---	91.7	0	0	0	0	91.7	140	0	0	0	0	140
	Pooled	100	0	0	0	0	---	105.5	0	0	0	0	105.5	161	0	0	0	0	161
	Outside CG:	100	0	0	0	0	---	74.2	0	0	0	0	74.2	191	0	0	0	0	191
MOSCA	Inside CG:																		
	Interior	100	0	0	0	0	---	121.6	0	0	0	0	121.6	195	0	0	0	0	195
	Inter-Unit	81	19	0	0	0	---	82.0	21.4	0	0	0	103.4	150	35	0	0	0	65
	Pooled	91	9	0	0	0	---	101.8	10.7	0	0	0	112.5	172	18	0	0	0	57
	Outside CG:	73	26	0	0	WF 1	---	77.8	27.8	0	0	WF 1.1	106.7	158	80	0	0	WF 4	243

2. HAZARD AND DWARF MISTLETOES

		AVERAGE HAZARD RATING						% HAZARD RATING			DWARF MISTLETOES			
											% INFECTION		DMR	
		LPP	SP	ASP	DF	PP	TOT	HIGH	MED	LOW	LPP	TOTAL	LPP	STAND
SPRING CREEK	Inside CG:													
	Interior	18.0	0	---	--	--	13.5	0	75	25	67	50	4.25	2.1
	Inter-Unit	5.1	0	---	--	--	4.8	0	27	73	57	53	2.75	1.5
	Pooled	9.0	0	---	--	--	7.8	0	43	57	60	52	3.25	1.7
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	100	52	3.1	1.6
ONE-MILE	Inside CG:													
	Interior	16.2	--	21.0	--	--	17.0	11	78	11	47	39	3.6	1.4
	Inter-Unit	10.1	0	20.3	--	--	12.5	8	54	38	0	0	0	0
	Pooled	14.1	0	20.6	--	--	15.1	10	68	23	30	23	3.6	0.8
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	62	39	2.8	1.1
NORTHBANK	Inside CG:													
	Interior	15.9	0	---	--	6.0	14.4	12.5	63	25	0	0	0	0
	Inter-Unit	15.6	9.0	---	--	0	14.0	0	78	22	0	0	0	0
	Pooled	15.8	6.0	---	--	4.0	14.2	7	69	24	0	0	0	0
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	0	0	0	0
ROSY LANE	Inside CG:													
	Interior	9.0	18.0	---	--	9.0	9.8	0	55	45	12.5	9	2.0	0.2
	Inter-Unit	15.8	--	---	--	--	15.8	0	88	12	60	60	2.5	1.5
	Pooled	14.2	18.0	---	--	9.0	14.0	0	78	22	48	44	2.4	1.1
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	27	15	2.5	0.4

2. HAZARD AND DWARF MISTLETOES (CONT.)

		AVERAGE HAZARD RATING						% HAZARD RATING			DWARF MISTLETOES			
											% INFECTION		DMR	
		LPP	SP	ASP	DF	PP	TOT	HIGH	MED	LOW	LPP	TOTAL	LPP	STAND
LAKEVIEW	Inside CG:													
	Interior	16.0	--	---	--	--	16.0	0	89	11	24	24	2.2	0.5
	Inter-Unit	12.6	--	---	--	--	12.6	3	65	32	27	27	2.1	0.6
	Pooled	14.5	--	---	--	--	14.5	1	79	20	26	26	2.2	0.6
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	18	18	3.0	0.5
MOSCA	Inside CG:													
	Interior	16.8	--	---	--	--	16.8	15	67	15	0	0	0	0
	Inter-Unit	10.5	0	---	--	--	8.5	19	19	62	0	0	0	0
	Pooled	14.1	0	---	--	--	12.8	18	43	38	0	0	0	0
	Outside CG:	XXXX	XXX	XXX	XXX	XXX	XXXX	XX	XX	XX	0	0	0	0

3. DISEASES AND INSECTS

		PERCENT WITH ROOT DISEASE						PERCENT WITH STEM DECAY						PERCENT WITH CANKERS					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
SPRING CREEK	Inside CG: Interior	0	0	---	--	--	0	0	0	---	--	--	0	0	0	---	--	--	0
	Inter-Unit	0	0	---	--	--	0	0	0	---	--	--	0	0	0	---	--	--	0
	Pooled	0	0	---	--	--	0	0	0	---	--	--	0	0	0	---	--	--	0
	Outside CG:	0	0	---	0	0	0	0	0	---	0	0	0	0	0	---	0	0	0
ONE-MILE	Inside CG: Interior	0	--	33	--	--	6	7	--	0	--	--	6	0	--	33	--	--	6
	Inter-Unit	0	0	0	--	--	0	0	0	25	--	--	8	0	0	50	--	--	15
	Pooled	0	0	14	--	--	3	4	0	14	--	--	6	0	0	43	--	--	10
	Outside CG:	0	0	4	--	PP/J 0/0	0.6	0	0	13	0	PP/J 0/0	2	0	0	8	0	PP/J 0/0	1
NORTHBANK	Inside CG: Interior	0	0	--	--	0	0	5	0	--	--	0	4	0	0	--	--	0	0
	Inter-Unit	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Pooled	0	0	--	--	0	0	3	0	--	--	0	2	0	0	--	--	0	0
	Outside CG:	0	0	--	0	PP/C 0/0	0	3	0	--	0	PP/C 0/0	2	0	0	--	0	PP/C 0/0	0
ROSY LANE	Inside CG: Interior	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Inter-Unit	0	0	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
	Pooled	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Outside CG:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3. DISEASES AND INSECTS (CONT.)

		PERCENT WITH ROOT DISEASE						PERCENT WITH STEM DECAY						PERCENT WITH CANKERS					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
LAKEVIEW	Inside CG:																		
	Interior	0	--	--	--	--	0	2	--	--	--	--	2	0	--	--	--	--	0
	Inter-Unit	0	--	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
	Pooled	0	--	--	--	--	0	1	--	--	--	--	1	0	--	--	--	--	0
	Outside CG:	1	--	--	--	--	1	1	--	--	--	--	1	0	--	--	--	--	0
MOSCA	Inside CG:																		
	Interior	0	--	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
	Inter-Unit	0	0	--	--	--	0	0	0	--	--	--	0	0	--	--	--	--	0
	Pooled	0	0	--	--	--	0	0	0	--	--	--	0	0	--	--	--	--	0
	Outside CG:	0	0	--	--	WF 0	0	4	0	--	--	WF 0	3	0	0	--	--	WF 0	0

3. DISEASES AND INSECTS (CONT.)

		PERCENT WITH RUST DISEASE						PERCENT WITH DEFOLIATING INSECTS						PERCENT WITH BARK BEETLES					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
SPRING CREEK	Inside CG: Interior	0	0	--	--	--	0	0	0	--	--	--	0	0	0	--	--	--	0
	Inter-Unit	0	0	--	--	--	0	0	0	--	--	--	0	0	0	--	--	--	0
	Pooled	0	0	--	--	--	0	0	0	--	--	--	0	0	0	--	--	--	0
	Outside CG:	8	0	--	0	0	4	0	0	--	25	--	7	0	0	--	0	0	0
ONE-MILE	Inside CG: Interior	0	--	0	--	--	0	0	--	0	--	--	0	0	--	0	--	--	0
	Inter-Unit	0	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0
	Pooled	0	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0
	Outside CG:	0	0	0	0	PP/J 0/0	0	0	0	0	0	PP/J 0/0	0	0	0	0	0	PP/J 0/0	0
NORTHBANK	Inside CG: Interior	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Inter-Unit	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Pooled	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Outside CG:	0	0	--	0	PP/C 0/0	0	0	0	--	0	PP/C 0/0	0	0	0	--	--	PP/C 0/0	0
ROSY LANE	Inside CG: Interior	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Inter-Unit	0	--	--	--	--	--	0	--	--	--	--	0	0	--	--	--	--	0
	Pooled	0	0	--	--	0	0	0	0	--	--	0	0	0	0	--	--	0	0
	Outside CG:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3. DISEASES AND INSECTS (CONT.)

		PERCENT WITH RUST DISEASE						PERCENT WITH DEFOLIATING INSECTS						PERCENT WITH BARK BEETLES					
		LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT	LPP	SP	ASP	DF	PP	TOT
LAKEVIEW	Inside CG:																		
	Interior	0	--	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
	Inter-Unit	2	--	--	--	--	2	0	--	--	--	--	0	0	--	--	--	--	0
	Pooled	1	--	--	--	--	1	0	--	--	--	--	0	0	--	--	--	--	0
	Outside CG:	0	--	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
MOSCA	Inside CG:																		
	Interior	0	--	--	--	--	0	0	--	--	--	--	0	0	--	--	--	--	0
	Inter-Unit	0	0	--	--	--	0	0	0	--	--	--	0	0	0	--	--	--	0
	Pooled	0	0	--	--	--	0	0	0	--	--	--	0	0	0	--	--	--	0
	Outside CG:	1	8	--	--	WF 0	3	0	0	--	--	WF 0	0	0	0	--	--	WF 0	0

4. REGENERATION SURVEY

		LPP	SP	ASP	DF	TOTAL
SPRING CREEK	# Trees Per Acre	150	--	525	--	675
	% Of Total Regeneration	22	--	77	--	---
(63% of	# Trees Per Acre >2' Tall	150	--	525	--	675
plots had	% Trees Per Acre >2' Tall	100	--	100	--	100
no regen.)	# Trees Per Acre <2' Tall	0	--	0	--	0
	% Trees Per Acre <2' Tall	0	--	0	--	0
ONE-MILE	# Trees Per Acre	120	120	1200	30	1470
	% Of Total Regeneration	8	8	82	2	---
(20% of	# Trees Per Acre >2' Tall	90	30	900	30	1050
plots had	% Trees Per Acre >2' Tall	75	25	75	100	71
no regen.)	# Trees Per Acre <2' Tall	30	90	300	0	420
	% Trees Per Acre <2' Tall	25	75	25	0	29
NORTHBANK	# Trees Per Acre	---	--	450	--	450
(83% of	% Of Total Regeneration	---	--	100	--	100
plots had	# Trees Per Acre >2' Tall	---	--	400	--	400
no regen.)	% Trees Per Acre >2' Tall	---	--	89	--	89
	# Trees Per Acre <2' Tall	---	--	50	--	50
	% Trees Per Acre <2' Tall	---	--	11	--	11
ROSY LANE	# Trees Per Acre	300	--	38	75	413
	% Of Total Regeneration	73	--	9	18	---
(63% of	# Trees Per Acre >2' Tall	113	--	38	38	189
plots had	% Trees Per Acre >2' Tall	38	--	100	50	46
no regen.)	# Trees Per Acre <2' Tall	187	--	0	38	225
	% Trees Per Acre <2' Tall	62	--	0	50	54
LAKEVIEW	# Trees Per Acre	1750	--	--	--	1750
(50% of	% Of Total Regeneration	100	--	--	--	---
plots had	# Trees Per Acre >2' Tall	967	--	--	--	967
no regen.)	% Trees Per Acre >2' Tall	55	--	--	--	55
	# Trees Per Acre <2' Tall	783	--	--	--	783
	% Trees Per Acre <2' Tall	45	--	--	--	45
MOSCA	# Trees Per Acre	375	150	--	--	525
(25% of	% Of Total Regeneration	71	29	--	--	---
plots had	# Trees Per Acre >2' Tall	112	0	--	--	112
no regen.)	% Trees Per Acre >2' Tall	30	0	--	--	21
	# Trees Per Acre <2' Tall	263	150	--	--	413
	% Trees Per Acre <2' Tall	70	100	--	--	79

4. REGENERATION SURVEY

		LPP	SP	ASP	DF	TOTAL
SPRING CREEK (63% of plots had no regen.)	# Trees Per Acre	150	--	525	--	675
	% Of Total Regeneration	22	--	77	--	---
	# Trees Per Acre >2' Tall	150	--	525	--	675
	% Trees Per Acre >2' Tall	100	--	100	--	100
	# Trees Per Acre <2' Tall	0	--	0	--	0
	% Trees Per Acre <2' Tall	0	--	0	--	0
ONE-MILE (20% of plots had no regen.)	# Trees Per Acre	120	120	1200	30	1470
	% Of Total Regeneration	8	8	82	2	---
	# Trees Per Acre >2' Tall	90	30	900	30	1050
	% Trees Per Acre >2' Tall	75	25	75	100	71
	# Trees Per Acre <2' Tall	30	90	300	0	420
	% Trees Per Acre <2' Tall	25	75	25	0	29
NORTHBANK (83% of plots had no regen.)	# Trees Per Acre	---	--	450	--	450
	% Of Total Regeneration	---	--	100	--	100
	# Trees Per Acre >2' Tall	---	--	400	--	400
	% Trees Per Acre >2' Tall	---	--	89	--	89
	# Trees Per Acre <2' Tall	---	--	50	--	50
	% Trees Per Acre <2' Tall	---	--	11	--	11
ROSY LANE (63% of plots had no regen.)	# Trees Per Acre	300	--	38	75	413
	% Of Total Regeneration	73	--	9	18	---
	# Trees Per Acre >2' Tall	113	--	38	38	189
	% Trees Per Acre >2' Tall	38	--	100	50	46
	# Trees Per Acre <2' Tall	187	--	0	38	225
	% Trees Per Acre <2' Tall	62	--	0	50	54
LAKEVIEW (50% of plots had no regen.)	# Trees Per Acre	1750	--	--	--	1750
	% Of Total Regeneration	100	--	--	--	---
	# Trees Per Acre >2' Tall	967	--	--	--	967
	% Trees Per Acre >2' Tall	55	--	--	--	55
	# Trees Per Acre <2' Tall	783	--	--	--	783
	% Trees Per Acre <2' Tall	45	--	--	--	45
MOSCA (25% of plots had no regen.)	# Trees Per Acre	375	150	--	--	525
	% Of Total Regeneration	71	29	--	--	---
	# Trees Per Acre >2' Tall	112	0	--	--	112
	% Trees Per Acre >2' Tall	30	0	--	--	21
	# Trees Per Acre <2' Tall	263	150	--	--	413
	% Trees Per Acre <2' Tall	70	100	--	--	79

APPENDIX E

Locations of dwarf mistletoe centers in
Spring Creek, One-Mile, Rosy Lane and
Lakeview Campgrounds (dwarf mistletoe was
not present in Northbank or Mosca Campgrounds).

Figure 1. Map of Spring Creek Campground
Taylor River District, Gunnison N.F.

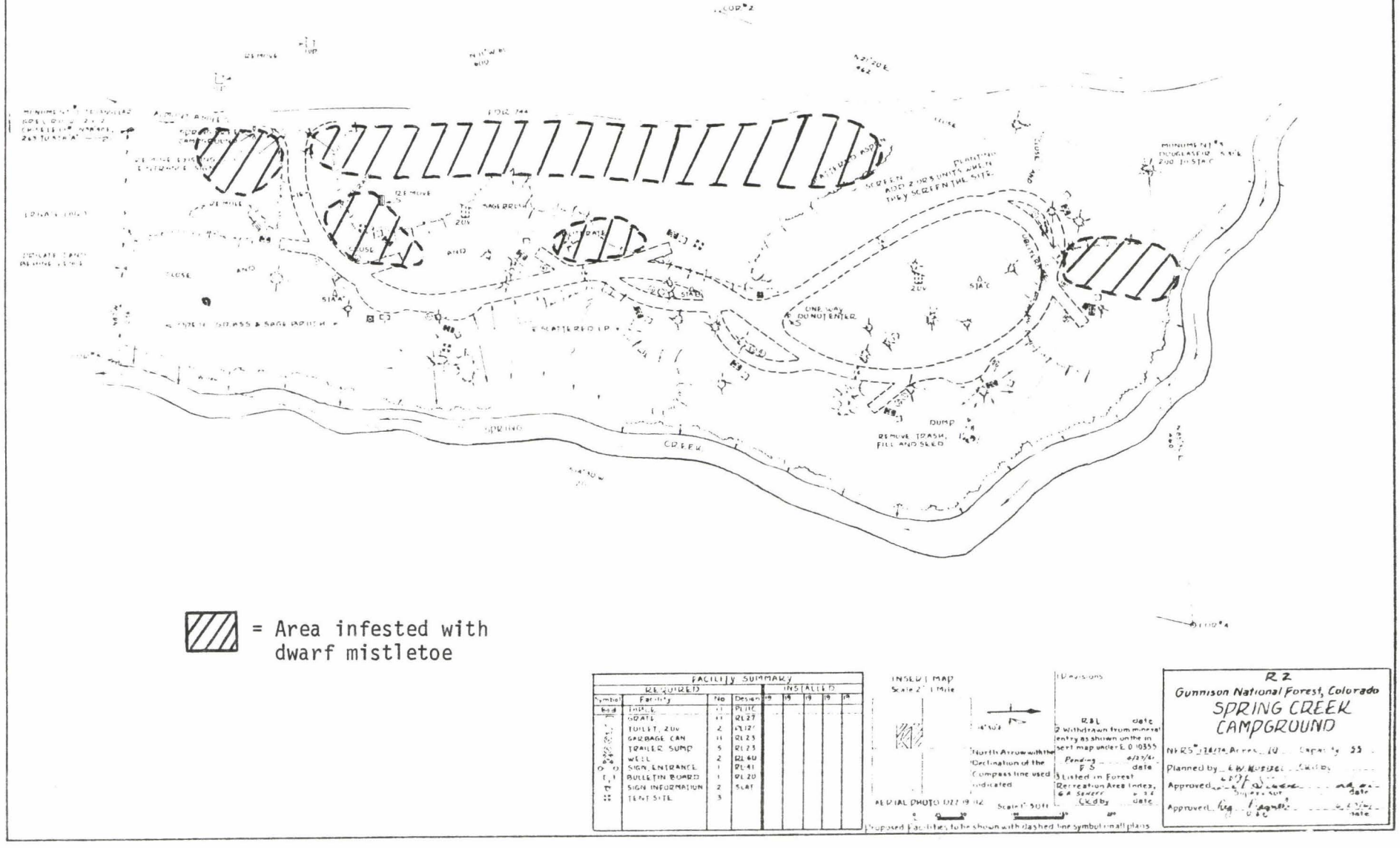


Figure 2. Map of One-Mile Campground
Taylor River District, Gunnison N.F.

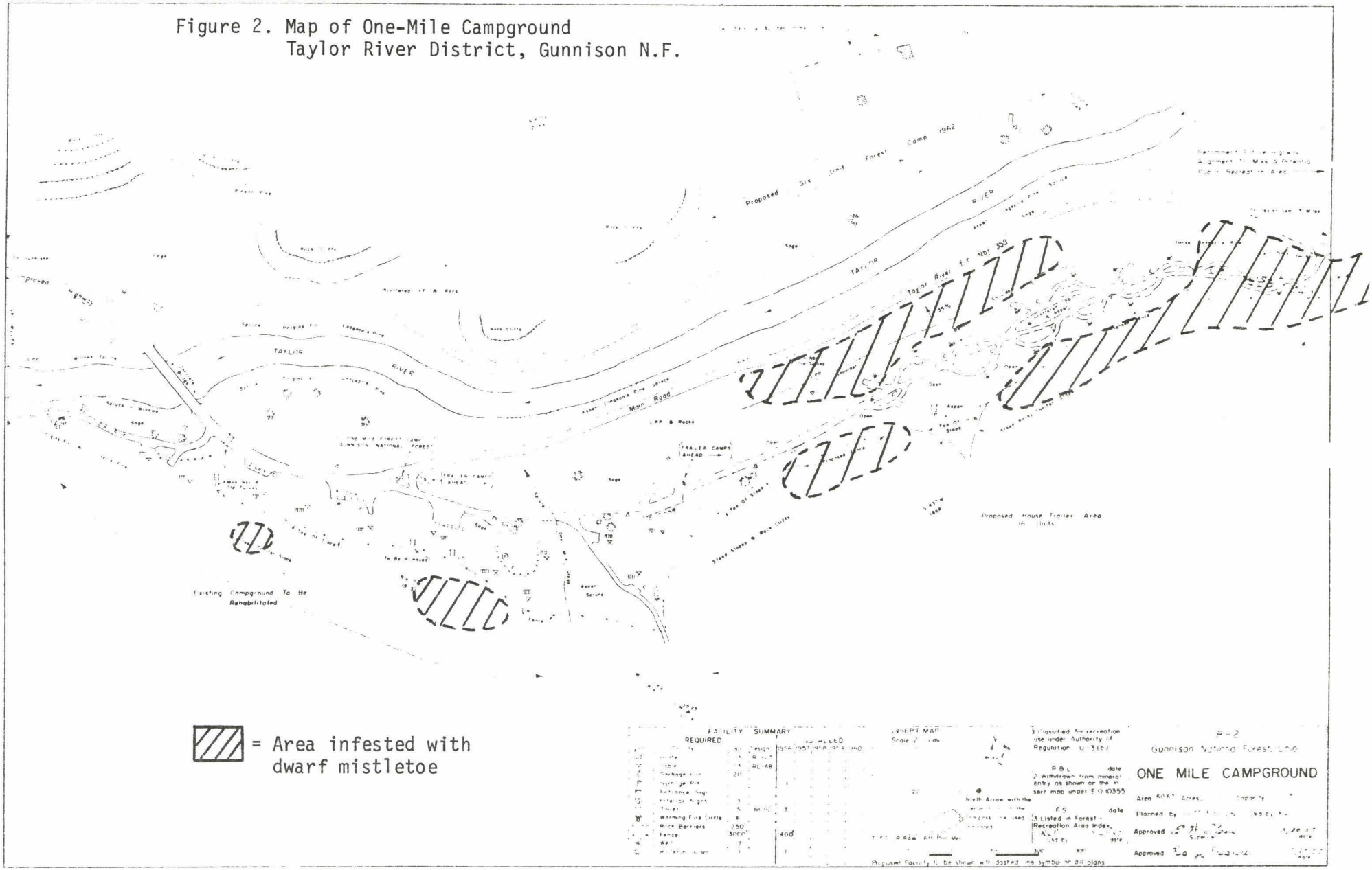


Figure 3. Map of Rosy Lane Campground
Taylor River District, Gunnison N.F.

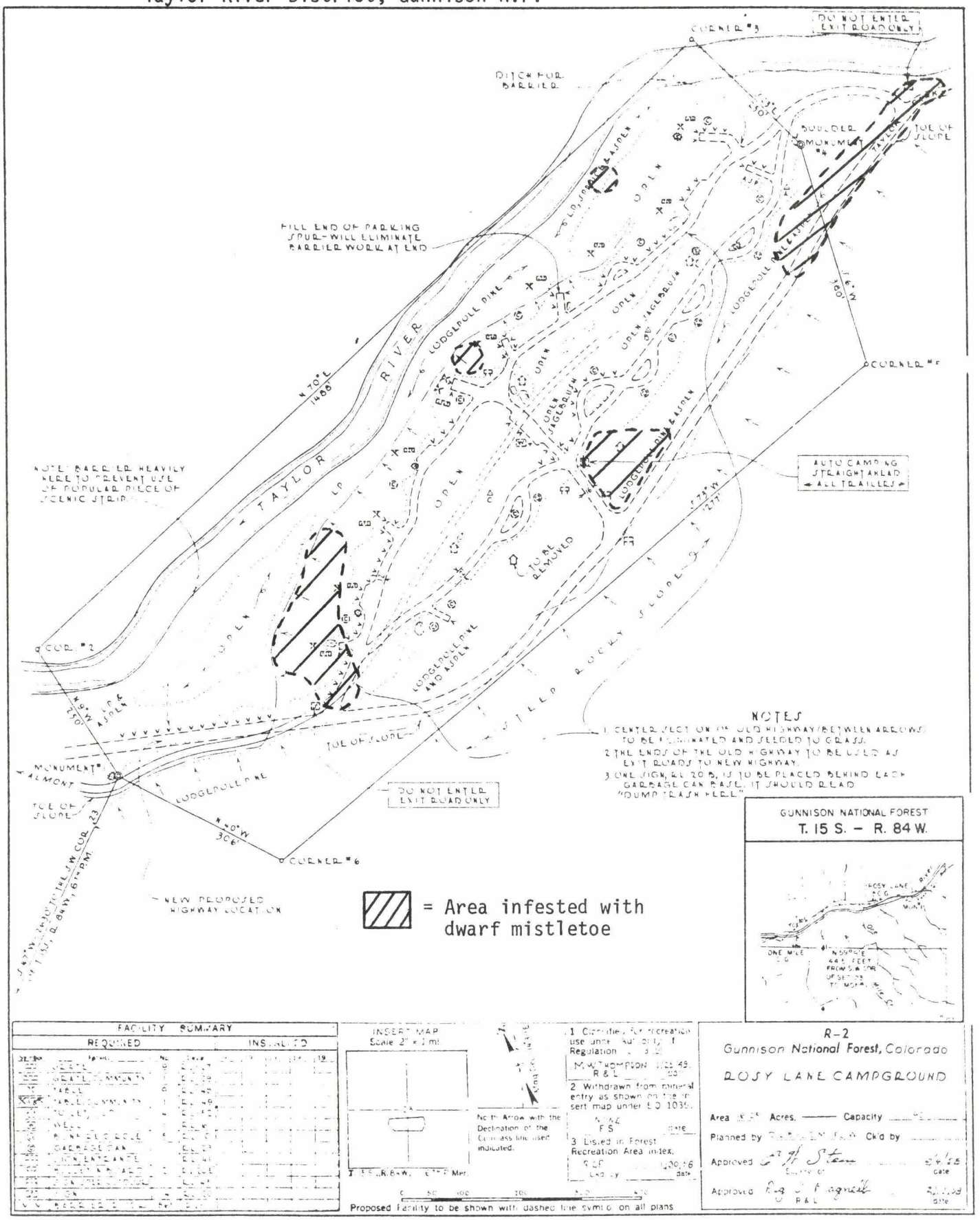

CORNER #3
DO NOT ENTER EXIT ROAD ONLY
DITCH FOR BARRIER
BOULDER MONUMENT #4
TOE OF SLOPE
FILL END OF PARKING SPUR - WILL ELIMINATE BARRIER WORK AT END
OLD ROAD
ASPEN
OPEN
LODGEPOLE PINE
TAYLOR RIVER
N 70° E 1400'
CORNER #5
AUTO CAMPING STRAIGHT AHEAD ALL TRAILERS
NOTE: BARRIER HEAVILY HERE TO PREVENT USE OF POPULAR PIECE OF SCENIC STRIP
TO BE REMOVED
STEEP ROCKY SLOPE
CORNER #2
MONUMENT ALMONT
DO NOT ENTER EXIT ROAD ONLY
CORNER #6
NEW PROPOSED HIGHWAY LOCATION
NOTES
1. CENTER SECTION OF OLD HIGHWAY BETWEEN ARROWS TO BE ELIMINATED AND SEEDED TO GRASS.
2. THE ENDS OF THE OLD HIGHWAY TO BE USED AS EXIT ROADS TO NEW HIGHWAY.
3. ONE SIGN, EL 20 B, IS TO BE PLACED BEHIND EACH GARBAGE CAN BASE. IT SHOULD READ "DUMP TRASH HERE"
= Area infested with dwarf mistletoe
GUNNISON NATIONAL FOREST
T. 15 S. – R. 84 W.
ROSY LANE P.C.
ONE MILE
N 59° E 445 FEET FROM S 1/4 COR OF SEC 23 T15S R84W
FACILITY SUMMARY
REQUIRED
INSTALLED
INSERT MAP
Scale 2" = 1 mi
North Arrow with the Declination of the Compass line used indicated.
Proposed Facility to be shown with dashed line symbol on all plans
1. Classified for recreation use under Authority of Regulation
M. W. THOMPSON
R & L
2. Withdrawn from mineral entry as shown on the insert map under E.O. 1035
F S
3. Listed in Forest Recreation Area Index.
Cad by
date
R-2
Gunnison National Forest, Colorado
ROSY LANE CAMPGROUND
Area Acres. Capacity
Planned by Cad by
Approved
Supervisor
date
Approved
R & L
date

Figure 4. Map of Lakeview Campground
Taylor River District, Gunnison N.F.